White Paper on Watershed-based Source Protection Planning

February, 2004

Ontario

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White Paper on Watershed-based Source Protection Planning

Integrated Environmental Planning Division,
Strategic Policy Branch
Ministry of the Environment

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SECTION 1: INTRODUCTION

Safe, clean drinking water is fundamental to the health and well being of Ontarians. Having an adequate supply of drinking water is also essential for strong, lasting, and prosperous communities.

While Ontario has some of the world's largest supplies of drinking water, there are increasing threats to our drinking water. Population growth and the expansion of commercial, industrial, and agricultural enterprises, among others, affect our watersheds and groundwater recharge areas, making the job of supplying safe drinking water at the tap ever more difficult and expensive.

The government is making the protection of our drinking water sources a much higher priority than it has been in the past. Why?

First and foremost, it protects public health. But safeguarding source water also has economic and environmental benefits. Once a water source is contaminated, it can be difficult, expensive, and sometimes impossible to replace or restore it. That is why the Government of Ontario is committed to developing a comprehensive source water protection framework and to taking steps to better protect the sustainability of Ontario's water resources.

Source water protection is about taking action to protect the *quality* of our drinking water sources from contamination. It is also about protecting the *quantity* of our drinking water supplies from unacceptable impacts of water takings.

Protecting both the quality and quantity of our water resources is the best way to guarantee that Ontario will have enough valuable clean water for years to come.

Purpose

The government knows that Ontario needs the right rules in place to protect our valuable water resources, for ourselves and for future generations. That is why the government has committed to implementing the 121 recommendations made by Commissioner O'Connor in the Report of the Walkerton Inquiry (Parts One and Two)[1]. The purpose of this White Paper is:

- To inform Ontarians of the proposed approach for the development of a watershed-based source water protection program, including how stakeholders and the public will be involved.

[1] The Walkerton Commission of Inquiry, headed by Mr. Justice Dennis O'Connor, examined the May 2000 contamination of the Walkerton water supply and the safety of Ontario's drinking water. The Part One Report was released in January 2002 and the Part Two Report was released in May 2002.

- To describe the legislative framework proposed for the development and approval of source water protection plans.

- To examine ways of ensuring Ontario has a sustainable supply of water by enhancing its management of water takings, including improvements to the Ministry's water takings program and the development of a framework that would govern how those who take water should be charged.

This White Paper is put before Ontarians for discussion and comment.

The responses and advice that are received will help refine Ontario's policy and legislative framework for source water protection planning. It will also help to identify needed improvements to our water taking programs and to inform the development of a framework for water taking charges.

The government is currently also taking action to develop the implementation aspects of source water protection. The recently-established Technical Expert Committee and Implementation Committee will be providing the government with advice on:

- a process for assessing threats to sources of drinking water in Ontario;
- best management strategies to protect watersheds; and
- innovative funding mechanisms and incentives.

Future consultations will be undertaken when the committees provide their advice to the province.

Need for action

Water treatment alone cannot ensure that we can meet our needs for good quality water. Even with the best water treatment technology money can buy, a community is at risk if it relies on a water source that is susceptible to contamination – we have to start at the source.

Ontario must place greater emphasis on protecting the sources of our drinking water. Now, source water protection planning is undertaken on a voluntary basis by municipalities and conservation authorities, leading to inconsistencies across the province. Without a comprehensive source water protection program, public health remains at risk.

Part of protecting our water resources is to better manage how much water is taken out of the watershed for human use. Current laws and regulations provide statutory authority, but not the modern regulatory tools needed to manage the water being taken from Ontario's lakes, streams and aquifers in a comprehensive manner. That is why we will improve how we preserve the quantity of our valuable water resources through updating the 'permit to take water' program and implementing a framework for water taking charges.

What else are we doing on source water protection?

On November 14, 2003, acting on the recommendation of the Advisory Committee on Watershed-based Source Protection, the government announced the establishment of two expert source water protection committees:

- The 21-member Implementation Committee is tasked with providing advice to the government on tools and approaches to implement watershed-based source protection planning. One of the committee's first tasks is to provide advice on new and existing roles and responsibilities of the province, municipalities and conservation authorities to implement source protection plans. The committee is also examining innovative funding mechanisms and incentives.

- The 16-member Technical Experts Committee is providing advice on an Ontario-based threat assessment process. The committee is providing advice on areas including:
  - categorizing threats to water;
  - linking groundwater protection to surface water management;
  - the effects of water-takings on the availability and quality of drinking water;
  - appropriate risk management tools for various levels of threats; and
  - protecting both current and future drinking water sources.

Both committees are building on the recommendations of the Advisory Committee on Watershed-based Source Water Protection Planning[2].

- On December 18, 2003, the government announced a moratorium on new and expanded water taking permits for products such as bottled water. The moratorium is in effect from December 18, 2003 until December 31, 2004. It ensures that 'permits to take water' will not be issued for new and expanding water bottling operations and certain other commercial takings until new rules are developed. The new rules will be in effect before the moratorium is lifted.

And, through this White Paper, the government is addressing even more of the recommendations of Commissioner O'Connor and building on the framework proposed by the Advisory Committee on Watershed-based Source Protection Planning by:

- Developing source water protection legislation[3].

- Engaging in wide consultation on the content of the proposed legislation before introducing it into the Legislature[4].

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[2] The *Final Report: Protecting Ontario's Drinking Water: Toward a Watershed-based Source Protection Planning Framework* of the Advisory Committee on Watershed-based Source Protection Planning contains 55 recommendations and was released in April 2003.

[3] Refer to the Part Two Report of the Walkerton Inquiry recommendation no. 68 and the Advisory Committee on Watershed-based Source Protection Planning recommendation no. 7.

- Ensuring that watersheds across Ontario have source water protection plans[5].
- Strengthening provincial rules to ensure that the approval of water takings is based on a comprehensive approach to managing water.

Organization of the White Paper

The paper is organized into four sections:

- **SECTION 1: INTRODUCTION** provides context for the discussion on source water protection and the government's actions on source water protection.
- **SECTION 2: BACKGROUND** helps to answer some basic questions that readers may have about source water protection.
- **SECTION 3: PROPOSED SOURCE WATER PROTECTION LEGISLATION** sets out the proposed content of source water protection planning legislation.
- **SECTION 4: IMPROVING THE MANAGEMENT OF WATER TAKINGS** outlines how the Ministry is proposing to approach its review of the existing water takings program and its development of a framework for water taking charges.

How to participate

The province is seeking your written comments on its *White Paper on Watershed-based Source Water Protection Planning*. The deadline for receiving your comments is April 12, 2004].

You may send your comments by mail, fax or email to:

Ontario Ministry of the Environment
White Paper on Watershed-based Source Water Protection Planning

Dawn Landry, Senior Policy Advisor
135 St-Clair Avenue West, 11th floor
Toronto, Ontario, M4V 1P5
PHONE: (416) 314-4130
FAX: (416) 314-2976
EMAIL: dawn.landry@ene.gov.on.ca

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[4] Refer to the Advisory Committee on Watershed-based Source Protection Planning recommendation no. 41.
[5] Refer to the Part Two Report of the Walkerton Inquiry recommendation no. 1.

This paper can be reviewed online at www.ene.gov.on.ca.

Provincial representatives will also be meeting with key stakeholders on source water protection issues across Ontario between March 1-23 in:

- London on March 1st ;
- Kitchener-Waterloo on March 2nd;
- Peterborough on March 4th;
- Kingston on March 5th;
- Ottawa on March 8th;
- Thunder Bay on March 10th;
- Sudbury on March 12th; and
- Toronto on March 23rd, to obtain their views directly.

Further information on actions to protect Ontario's drinking water is available on the Ministry of Environment web site at www.ene.gov.on.ca. Or contact the Ministry's Public Information Centre, toll-free at 1-800-565-4923, TTY:1-800-387-5559, in Toronto call (416) 325-4000.

SECTION 2: BACKGROUND

This section provides an introduction to some of the basic concepts involved in source water protection planning.

What is source water protection?

Source water protection is the first barrier in a multi-barrier approach to ensuring safe drinking water that safeguards the water in our lakes, rivers and aquifers. Source water protection involves a series of inter-related components, with feedback loops between its constituent parts.

In the assessment phase, it requires undertaking a study of the potential sources of contamination, determining how much water is really available for human use in a watershed, and evaluating where that water is vulnerable to contamination. In the protection phase, source water protection involves implementing programs aimed at minimizing the chances of contaminants entering the water resource. These programs work to manage identified risks to water quality and quantity through a combination of direct controls, incentives, and voluntary measures to ensure long-term protection of current and future drinking water sources.

Management strategies to implement source water protection are a mixture of localized measures, designed to protect individual sources, and wider-ranging measures, designed to protect the larger water resource body. The latter can be done on a regional, provincial, national or even international (e.g., the Great Lakes) scale.

Threats to drinking water sources may be natural or may be brought about by human activity. The manner in which threats are managed must be defined on a site-specific basis according to the level of risk a threat represents to the water source.

Both surface and groundwater resources face the threat of contamination at the source. The inter-relationship between ground and surface water means that contaminants can migrate between the two. As a result, both surface and ground water resources must be adequately protected to ensure the safety of drinking water supplies.

Though Ontario does not now have a specific piece of source water protection legislation, the Provincial Policy Statement, issued under the *Planning Act*, provides direction and leadership in this area. It states: "The quality and quantity of groundwater and surface water and the function of sensitive groundwater recharge/discharge areas, aquifers, and headwaters will be protected or enhanced."

The Provincial Policy Statement is now undergoing a mandated five-year review. Stakeholders, in the consultations held to-date, have identified water as a key provincial resource and made recommendations that would increase its level of protection. The review process is still under way and, until it is complete, the current Provincial Policy Statement remains in effect.

GROUND AND SURFACE WATER

Surface waters are defined as above-ground water sources, including lakes, streams and wetlands. Groundwater is water that has percolated into the ground and occupies spaces between soil particles or cracks and fissures in otherwise solid rock. Both sources are vulnerable to contamination from agricultural, industrial and municipal sources.

Groundwater can become contaminated through infiltration from surface contaminants, from improperly constructed or decommissioned wellheads that can act as conduits of contaminants, or from underground sources such as septic systems or storage tanks. A surface source of groundwater contaminants could include the leakage or spill of a contaminant on the ground.

Both ground and surface water are at risk from point and non-point sources of contamination. And, once contaminated, it is often very difficult to remove contaminants, some of which may stay there for decades or even centuries.

What is a watershed?

The term 'watershed' is normally associated with surface water resources and describes an area of land that drains downwards towards lower elevations. Drainage pathways generally converge at rivers or lakes, which tend to become progressively larger as the water moves further downstream through the watershed. Other common terms used to describe a watershed include 'drainage basin' or 'catchment area'. Watersheds may be large or small, and several smaller watersheds may join together to form a larger watershed.

The concept of a 'groundwatershed' is more complex and far more difficult to map. However, it generally refers to the area that contributes water to a particular aquifer or water-bearing zone with an aquifer complex.

Ontario has delineated its watersheds by size. Primary watersheds are the largest. Secondary watersheds are smaller watersheds nested within the primary watershed boundaries. Tertiary watersheds are smaller still, nested within secondary watersheds. Further sub-watersheds can be defined. (See Appendix 1, Figure #1)

Why are source water protection plans best developed on a watershed basis?

The purpose of source water protection plans is to coordinate actions in a way that maximizes the protection of public health and the safeguarding of source water quality and quantity over the long term.

Watersheds are generally considered to be the most practical unit for managing water . This is because impacts are felt at the watershed level, rather than at the level of political boundaries, such as municipalities. As water flows downhill or seeps into groundwater, pollution discharged to the upstream segments impacts the downstream segments of the same river system. As water combines with pollution discharged from downstream sources, the effects are cumulative. (See Appendix 1, Figure #2)

For example, at the local level, a township controls the operation of the drinking water treatment facility and distribution system. However, the township does not typically have control over the quality of its source water because the source is impacted by activities that reach far out into the watershed beyond the township's boundaries. For instance, there are 34 upper and lower tier municipalities in the Grand River watershed. This is why partnerships across all lines – jurisdictional, governmental, and property – are crucial to source water protection efforts and why source water protection planning must involve stakeholders from across the watershed.

Multi-Barrier Approach to Drinking Water Safety

In Part Two of the Report of the Walkerton Inquiry, Commissioner O'Connor made 22 recommendations related to source protection, including a recommendation that source protection plans should be required for all watersheds in Ontario. The overall premise of his recommendations is that the best way to achieve a healthy public water supply is to put in place *multiple barriers* that keep water contamination from reaching people.

The 'multi-barrier approach' covers all elements of the provision of drinking water from source water protection, to treatment, distribution, monitoring and responses to adverse conditions, including specific responses for emergencies. Although each barrier offers protection, no single barrier is 100% effective. Thus, an over-reliance on only one barrier at the expense of another increases the risk of contamination. Leaving out key steps at one stage can negate the effect of other stages.

Five types of barriers are commonly used in the provision of drinking water:

- **Source water protection** keeps the raw water as clean as possible to lower the risk that contaminants will get through or overwhelm the treatment system.
- **Treatment** uses one or more than one approach to remove or inactivate contaminants.
- **Distribution system security** prevents the intrusion of contaminants and ensures an appropriate free chlorine residual throughout.
- **Automatic Control or Early Warning Monitoring** detects contaminants that exist in concentrations beyond acceptable limits and return systems to normal operation.
- **Responses to Adverse Conditions** that are thorough and effective help to prevent adverse health impacts and further water degradation when other processes fail.

SECTION 3: PROPOSED SOURCE WATER PROTECTION PLANNING LEGISLATION

The Ontario government is planning to introduce legislation that would make locally-developed source water protection planning mandatory in watersheds across the province. This is consistent with the recommendations of Commissioner O'Connor in the *Part Two Report of the Walkerton Inquiry* and of the Advisory Committee on Watershed-based Source Protection Planning. Detailed regulations would also be developed to support the source water protection planning process.

Purpose of source water protection planning legislation

The purpose of the legislation would be to protect drinking water sources by requiring watershed-based source water protection plans to be developed and implemented in watersheds across Ontario.

The overarching goal would be to protect human health by ensuring that current and future sources of drinking water in Ontario's lakes, rivers and groundwater are kept from potential contamination and depletion. In addition, these plans would help maintain and enhance the ecological, recreational, and commercial values of our water resources.

The Great Lakes and Source Water Protection

The Great Lakes Basin is a complex system that includes not only the five Great Lakes, but also a system of streams, rivers and smaller lakes that drain large tracts of Ontario. The Great Lakes drainage basin, on both sides of the international border, measures approximately 775,000 square kilometers.

The Great Lakes serve as a source of drinking water for almost three-quarters of Ontario's population. There are already many programs in place, and even more are being established, to address the issue of direct discharges into the Great Lakes. These programs include:

- **Lakewide Management Plans (LaMPs)** are bi-national agreements aimed at understanding the lakewide problems and ecological impairments on each of the Great Lakes.
- **Municipal Industrial Strategy for Abatement (MISA)** govern waste water discharge standards for nine different industrial sectors to improve water quality draining into the Great Lakes.
- **Sewage Treatment Plants' Certificates of Approvals:** Discharges from municipal waste water facilities are currently controlled through approvals under the *Ontario Water Resources Act*. Improved and updated waste water discharge limits applied through these approvals will make a significant contribution to source water protection and improvement of the quality of waters draining into the Great Lakes.
- **Urban Stormwater Management:** Stormwater management mitigates the effects of urbanization on

the hydrologic cycle including increased runoff, and decreased infiltration, of rain and snowmelt. A stormwater management strategy may include protection of natural areas, design of communities to reduce stormwater generation, and pollution prevention programs, as well as other stormwater management practices.

- **Canada-Ontario Agreement Respecting Great Lakes Ecosystems (COA)** represents a commitment to reduce the amount of pollution entering the basin, improve and protect the fish and wildlife habitat, work towards safe water to swim in and drink, as well as fostering a sense of stewardship.

Source water protection as envisaged in this paper would focus on inland surface water and groundwater. The above mentioned Great Lakes programs would continue but source water protection plans would be required to have regard for the agreements and other strategies that Ontario has entered into with respect to the Great Lakes, including the Great Lakes Charter and COA. Note that the LakeWide Management Plans and the Remedial Action Plans undertaken under COA include contaminant and nutrient management, as well as ecological protection. These objectives complement the proposed source water protection framework.

Source water protection will make significant contributions to the Great Lakes by helping to improve the quality of water that flows into the Great Lakes. Together, source water protection plans and Ontario's comprehensive Great Lakes programs would complement each other and contribute to the protection and improvement of the Great Lakes water quality and quantity.

Watershed areas

By definition, the source water protection plans would be 'watershed-based'. For planning purposes, the watershed boundaries now used in the operation of Ontario's thirty-six Conservation Authorities are expected to be the starting point. The legislation would allow these boundaries to be changed when necessary. For example, some small areas of land in southern Ontario are not currently part of a conservation authority. The legislation could permit the current boundaries of conservation authorities to be amended for the purposes of source water protection planning and other purposes. [6]

In Northern Ontario, where a considerable amount of land is not covered by a conservation authority, the proposed legislation would provide the Ministry of the Environment with the authority to define the boundaries for watershed planning. Here, secondary watershed boundaries would likely be used for planning purposes.

[6] These boundary adjustments may be undertaken under the *Conservation Authorities Act*.

Conservation Authorities
Of the 36 Conservation Authorities in Ontario, 31 cover southern Ontario, while the remaining five have been established for the watersheds surrounding the major population centres of Northern Ontario. See Appendix 1, Figure #3 in for a map showing the boundaries of the Conservation Authorities.

Watershed regions

The Advisory Committee recognized that there should be a formal mechanism for conservation authorities to pool resources, share expertise and coordinate work in the preparation of source protection plans. In order to accomplish this, watersheds would be grouped into watershed regions comprised of two or more watersheds.

The Ministry is currently working with Conservation Ontario to organize watersheds into regions for the purposes of timely and efficient delivery of source water protection plans across Ontario's 36 conservation authorities.

Source water protection planning will require coordination among neighbouring watersheds because important hydrologic features, such as regional aquifers, may bridge watersheds and because municipal boundaries may also cross watersheds. To facilitate efficient use of resources and coordination of source water protection planning, individual watersheds will be grouped. A map showing possible boundaries for establishing watershed regions is provided in Appendix 1 Figure #4[7].

Establishing watershed regions would help ensure that source water protection planning is efficient and effective. It would mean that the specialists with the technical skills needed for source water protection planning could be efficiently utilized (e.g., water resource engineering, hydro-geology, land use planning, agricultural production, geographic information systems and education / consultation). It should also result in effective coordination of planning activities among neighbouring watersheds (e.g., conducting watershed studies, building the knowledge base, and the development of source water protection management strategies).

Considerations in establishing watershed regions would likely include bringing conservation authorities with the most experience in watershed planning together with less experienced conservation authorities. Municipal and First Nations boundaries would be another factor. The existence of common hydrologic features such as regional aquifers would be yet another consideration in the determination of watershed regions.

Watershed regions would be designated through an agreement between the Minister and the affected conservation authorities, with the Minister retaining the authority to amend the designated groupings at any time.

[7] Before designating the composition of each watershed region, the proposed groupings would be posted on the Environmental Bill of Rights Registry.

Lead conservation authority in a watershed region

In watershed regions with more than one conservation authority, a lead conservation authority would be designated for administrative purposes. Lead conservation authorities would have the following administrative responsibilities:

- working with the source protection planning board (SPPB) in each watershed to recommend a chair for the Source Protection Planning Committee (SPPC) for the watershed region to the province (see following sub-sections for details on SPPBs and SPPCs);
- working with the SPPB to establish an SPPC for the watershed region, while also ensuring proper stakeholder representation on the committee;
- serving as the coordinating body for the technical experts and use of technical and other shared resources; and
- assisting each SPPB to establish work planning priorities with the SPPC.

The SPPBs would be responsible for recommending a lead conservation authority for each region to the province. The Minister would have the authority to designate the lead conservation authority. It is anticipated that the 'lead' would go to the conservation authority within the watershed region with the most experience in, and capacity to coordinate, watershed management.

Source protection planning board

Source Protection Planning Boards (SPPB) would be established in each watershed to coordinate and review a number of the key functions that are part of the overall source water protection planning process (Appendix 1, See Figure #5).

In watersheds where there are conservation authorities, the SPPB would be the board of directors of the conservation authority (CA board). Though some municipalities now choose not to participate in their local conservation authority, the proposed legislation would be expected to require all municipalities in the planning area to participate in source water protection planning and other projects as necessary to the process. [8] Since the capacity of conservation authorities varies (e.g., some limit their scope to flood control in river basins), there may be the need to provide for an alternative approach in some cases.

The legislation would provide the authority to designate an SPPB in areas with no conservation authority.

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[8] This mandatory participation may be accomplished through amendments to the *Conservation Authorities Act*.

Governance Options for Consideration

Three potential governance structures that could carry out source water protection planning in watersheds with no conservation authorities are:

1. The five conservation authorities in Northern Ontario (Lakehead, Sault Ste Marie, Nickel District, Mattagami, North Bay-Mattawa) could coordinate plan development within their current watershed jurisdiction, as well as the entire secondary level watersheds in which they are situated. For some of these conservation authorities with smaller capacity, this may mean a joint lead with their primary municipality (e.g., Mattagami working with the City of Timmins).

2. Where no conservation authority exists, one could be established or lead municipalities with planning capacity in a secondary watershed could coordinate plan development (e.g., the District of Muskoka or Kenora).

3. In secondary level watersheds without municipal authority, consisting primarily Crown land), the Ministry of the Environment, or other ministry as appropriate, could coordinate plan development.

The primary responsibilities of the SPPB would be to review the work of the Source Protection Planning Committee (SPPC), specifically:

- reviewing and approving the Terms of Reference for the source water protection planning process based on the legally binding directions provided by the Ministry;
- ensuring that the source water protection assessment and plan comply with the requirements of the legislation and the provisions of the Terms of Reference, including the provisions governing public participation;
- working with the SPPC towards achieving supporting resolutions from 100% of municipal councils; and
- seeking formal documentation of the level of support for a source water protection plan.

The SPPB would be required to consider objections to the plan and attempt to resolve outstanding issues, ensuring that objections, and the approach taken to attempt to resolve them are documented. Once developed, the SPPB would submit the recommended draft source water protection plan to the Ministry for approval.

In addition, the SPPB could also be required to undertake other tasks, perform other duties and meet other requirements that may be specified in the legislation and regulations.

Where a watershed region has been established through an agreement between participating conservation authorities and the Minister, the legislation would provide the authority to delegate duties amongst participating SPPB in the agreement.

Source protection planning committee

Each watershed region would have a multi-stakeholder source protection planning committee (SPPC). The SPPC would coordinate the development of the source water protection plan (or plans) for the watershed region, and ensure plans conform to the source water protection legislation, regulations and associated guidelines.

The primary functions of the SPPC would be to:

- develop terms of reference for the source water protection plan within the watershed;
- provide direction for the development of the draft source water protection assessment and source water protection plan for each watershed in accordance with the source water protection legislation and regulations;
- coordinate the collection and analysis of technical data to support the source water protection plan and ensure the best available science is used;
- establish a watershed sub-committee with representatives of all municipalities in the watershed region as a formal mechanism for ongoing consultation during development of the source water protection plan;
- establish, as necessary, sub-committees for other stakeholders;
- establish and co-ordinate a transparent local consultation process to ensure broad consultation based on minimum requirements set by the Ministry (e.g., SPPC meetings to be advertised and open to the public to the extent possible; draft plans and proposals published and made widely available; inviting the public to provide their comments and input in writing);
- once completed, submit the draft plan to the SPPB for review;
- work with the SPPB toward achieving supporting resolutions from 100% of municipal councils;
- undertake other tasks, perform other duties and meet other requirements as specified in the legislation and regulations; and
- at key milestones, assess the appropriateness and validity of the approach, the science, and operational / management practices used in plan development.

The lead conservation authority would be responsible for establishing the SPPC. Where there are no conservation authorities, the SPPBs would establish the SPPCs.

Composition and Size of the SPPC

The Minister of the Environment would appoint the chair of the SPPC based on recommendations from the lead CA in each watershed region (or the designated planning body in areas with no conservation authorities).

The proposed model of the SPPC is that it would be comprised of five municipal representatives and ten other stakeholders including representatives of the following: one to two First Nations, one to two public health bodies, one to two members from the agricultural sector, one member of the public and four to five other members representative of other stakeholders (to be determined locally).

Provincial and federal representatives would participate *ex officio* on the SPPC. They would also participate through working groups and may sit *ex officio* on sub-committees.

The proposed maximum membership is 15 members, plus the chair.

Where local circumstances require, and a suitable rationale is provided by the SPPB, there could be exceptions made to the above rules (e.g., SPPC memberships could be task- or time-limited).

Local Leadership

Collaboration is the best way to establish durable solutions. Therefore, a key objective of source water protection planning would be to create effective partnerships among local stakeholders. Stakeholders are defined as those having an interest in the watershed management process or those who may influence or be influenced by decisions taken as a result of the process. This would include those affected by water quality or quantity issues or problems, those who may have their activities impacted by management and regulatory actions stemming from source water protection, and those who are responsible for managing water resources.

Source water protection planning is always a complex undertaking and it may be necessary to make 'trade-offs', making it all the more important for local stakeholders to work together to reach consensus on local priorities.

Opportunities for Stakeholder Involvement

There would be a number of mechanisms in addition to the SPPC for stakeholders to be involved in the development of their local source water protection plan. This could include participating in working groups established by the SPPC to work on specific aspects or tasks associated with the planning process. The working groups would assist with the technical work and other tasks related to the development of source water protection plans.

Representatives of key stakeholders such as municipalities, conservation authorities, provincial ministries or other organizations with a technical capacity are likely to be involved in a number of working groups. These groups would be responsible for tasks such as undertaking technical studies of water resources in the watershed during the assessment phase and for developing management strategies in the plan development phase. Municipalities would play a key role in working groups, given their expertise in key areas, including well head protection and land use planning. Each stakeholder or group would be able to select their own representatives for the SPPC (e.g., elected officials or municipal staff could participate).

Other stakeholders could be asked to deal with local sub-watershed issues where it is more practical and efficient for a working group (or sub-watershed committee) to play a role in researching and addressing targeted issues with a localized impact.

Transparency to the Public

The requirement for at least one member of the public to participate in the SPPC would ensure a minimum level of public representation.

To further ensure a transparent local consultation process, other steps would be required in the planning process. For example, source water protection meetings would be advertised and open to the public to the greatest extent possible. Assessment reports and draft plans and status reports would be published widely and available for public comment. Adequate time would be provided to ensure that a wide range of views are fully canvassed and public input is recorded.

Terms of reference for source water protection plans

One of the first steps in the plan development process would be the development of a terms of reference to govern the watershed-based source water protection planning process (See Appendix 1, Figure #6).

The Ministry of the Environment would issue legally binding directions to the SPPB governing the preparation and content for the terms of reference. All source water protection plans would have to adhere to a consistent provincial standard set through regulations but the content requirements are expected to be flexible enough to accommodate local conditions that will vary from watershed to watershed. The SPPC would then coordinate the development of the terms of reference for watersheds within the region based on these directions. The Minister would have the authority to allow deviations from these directions should the SPPB offer a sufficiently strong rationale.

Minimum Components in the Terms of Reference

Each terms of reference prepared by an SPPC would have to include, at a minimum, the following:

- a workplan targeted at interim goals and measures to protect immediate threats to drinking water sources, according to requirements set by the Ministry of the Environment;
- a workplan to develop a source water protection assessment that includes an outline of the necessary technical and scientific work required to lay the foundation of the source water protection plan;
- a process for the establishment of watershed sub-committees and working groups;

- a process for obtaining municipal support for the recommended source water protection plan;
- a publicly transparent decision-making and dispute-resolution process;
- a process for the establishment and coordination of local consultation with affected parties on the source water protection plan;
- an estimation of the proposed timeline for the completion of the source water assessment and source water protection plan; and
- an indication of whether watershed areas will be sub-divided or expanded to neighboring watershed areas for the purposes of undertaking assessments or developing source water protection plans.

Consultation on the Proposed Terms of Reference

Source water protection legislation would require that, once a proposed terms of reference is completed, all interested groups (stakeholders and the general public) have substantial opportunity to comment. For example, the SPPC could post a notice in the local newspaper which indicates where residents can view the proposed terms of reference, how comments can be made, and the deadline for comments.

Public input would be considered, and the terms of reference could be revised, before the SPPC forwards the proposed terms of reference to the SPPB for review and approval.

Approving the Terms of Reference

The SPPB would review and approve the terms of reference based on whether or not it satisfies the directions provided by the Ministry of the Environment. The board would be able to require the SPPC to correct any deficiencies. It would then provide a copy of the terms of reference to the Ministry of the Environment.

The Ministry would review the ToR and would have the ability to make comments to the SPPB.

If the Ministry had comments, the SPPB would be required to amend the terms of reference, within a specified period of time, to ensure that it conforms to the Ministry's directions. Then, it would submit the revised ToR to the Ministry. The Ministry of the Environment would also have the authority to amend the ToR, set priorities and include interim outcomes and measures at any time during the planning process.

The SPPB would be responsible for ensuring that a copy of the terms of reference is available upon request to the public.

Assessment report

Sound water resources management decisions depend on understanding the relationship between water quality, water use, and conditions within the watershed. The

most effective protection program will be built on accurate and representative assessments of threats to the water source[9] (see Appendix 2).

Once the ToR was finalized, the SPPC would generate a report that documents the status and characteristics of the water resource in the watershed area, identifies potential sources of contamination and water use issues, and provides other information necessary to develop a source water protection plan.

The 'assessment report' would cover two main topics:

- **A technical assessment of the status of watershed.** The assessment would provide information on existing and prospective water supplies, water use/demand for water in the watershed, and potential sources of contamination and water use issues. The proposed content of the assessment will be set out in regulation (see Appendix 3).

- **The scope/objectives of the SPP.** The SPPC would also undertake a consultative process to develop the scope and objectives of the source water protection plan. This phase of the assessment may be undertaken through a consensus process or a risk-management process at the discretion of the SPPC. Elements of the scope and objectives of the SPP would be outlined in the regulation (see Appendix 4).

For watersheds where a conservation authority is the SPPB, assessment reports would be required for submission to the Ministry over a two-year period. Regulations would set out a schedule for the submission of assessment reports to the Ministry, generally requiring key areas of work to be submitted by all SPPCs within a specified date.

The Minister would be able to, through an order authorized by source water protection legislation, extend the period for completion, whether or not the time previously set has expired.

The early assessments would be followed by more sophisticated comprehensive studies as the process matures, information changes and technology becomes more sophisticated over time.

[9] The work of the Technical Experts Committee that has been established by the government will be done in parallel with the consultation on the White Paper. The results of the Technical Experts Committee's work will inform the development of consistent standards.

Groundwater Studies

Ontario has taken a leadership role in providing support to communities for mapping municipal wellhead protection areas and mapping regional groundwater conditions. Recognizing the importance of this resource to the more than three million Ontarians who rely on private and municipal wells, 97 groundwater studies across Ontario have mapped municipal wellhead protection areas. These studies are being conducted by partnerships of municipalities and conservation authorities.

Information on groundwater resources and potential threats is an important first step in effective source water protection. By the end of 2004, over 95% of Ontario communities that rely on groundwater should have a common base of information on their groundwater resources.

Process for approval of the source water protection assessment

The SPPC would submit the draft assessment report to the SPPB for its review and the Board would review and endorse the assessment based on whether or not it complies with the requirement of the legislation. The SPPB would also be able to request that the SPPC to correct any deficiencies in the assessment.

When the SPPB has endorsed the assessment, the SPPB would provide a copy to the Ministry of the Environment.

The Ministry of the Environment would review the source water protection assessment and would provide comments, as needed, to the SPPB. If the Ministry has comments, the SPPB would be required to amend the assessment, within the period specified by the Minister, to ensure that it conforms to the directions provided by the Ministry and submit a revised report to the Ministry.

Once finalized, the SPPB would be responsible for ensuring that a copy of the assessment is available upon request to the public and also that public meetings are held in order to convey the findings of the assessment to the public.

Source water protection plans

The SPPC would begin development of a source water protection plan (SPP) for the watersheds in its region and coordinate with adjoining areas as appropriate (i.e., where groundwater travels across watershed boundaries). The purpose of the SPP would be to indicate the management actions that are required to protect the quality and quantity of sources of drinking water over the long term.

The development of an SPP would entail evaluating management options based on the ranked hazards identified in the source water protection assessment, prioritizing actions and implementing them. The SPP would then be developed in accordance with the legislation and regulations. (Note that the content of the SPP would be outlined in

detailed regulations and would be based, in part, on the results of the work of the Technical Experts Committee and the Implementation Committee.)

The SPP would include maps, tables and spreadsheets clearly depicting the designation of water resources as follows:

- those drinking water resources under significant and direct threat for immediate actions to reduce the threat;
- drinking water resources for which risk reduction practices must be maintained or phased in;
- future drinking water resources for which action is required either to restore or maintain the water quality and quantity; and
- surface water resources and other water resources (e.g., wetlands, springs, heritage waters) that require remediation or protection.

The SPP would include components such as:

- identification of measures to be taken to address immediate threats to drinking water sources. Examples of measures could include well head protection plan implementation, well decommissioning, clean-ups, land-use changes or modifications, etc;
- a description of the process that will be undertaken to ensure a transparent, broad local consultation process based on requirements set by the Ministry;
- an implementation plan to manage the identified source protection issues, delineate management actions to be undertaken, including those to resolve information gaps and outline including roles and responsibilities, accountability, process, schedule and outputs;
- a monitoring and assessment program including roles and responsibilities, accountability, process, schedule and outputs to fill information gaps and also track the status of management activities;
- a description of how the plan will be reviewed, updated and evaluated including roles and responsibilities, accountability, process schedule and outputs; and
- a description of the manner in which Great Lakes objectives have been taken into consideration and will be furthered;
- a description of outstanding or unresolved issues and how they will be dealt with (these may be addressed through additional data collection, more detailed study and approved analytical tools).

These components may be supplemented by guidelines that would be developed by the province.

Examples of Management Strategies

The following list contains examples of the types of management strategies that may be used in, or leveraged by, a source water protection plan to help achieve the established water quality and quantity objectives that have been set:

- limiting how much water can be taken from sensitive areas;
- linking source water protection objectives to related processes (e.g., official plans, land use planning, zoning, etc);
- supporting farm water protection programs and environmental farm plans;
- introducing protected lands strategies (e.g., easements, land purchases), education, and enforcement measures to preserve and restore water quality and quantity;
- restoring the landscape by, for example, increasing riparian buffers consisting of natural vegetation;
- introducing wellhead protection and discharge reduction programs; and
- introducing incentives that encourage adoption of best management practices that reduce the risk of contamination.

Technical process for source water protection plan development

A risk assessment and management protocol (see Appendix 2 for an outline of a potential approach) would be followed that would result in the recommendations for specific management activities related to source water protection. The risk management activities would identify where activities are needed to restore, maintain and protect surface water and groundwater quality and quantities.

The proposed regulations would set out data quality and default values that would invoke the 'precautionary principle', resulting in the use of a semi-quantitative risk assessment methodology to assessing risks. Assignment of management actions would be specified according to the level of risk derived from the assessment, taking into consideration the data quality and availability.

Consultation on source water protection plans

Commissioner O'Connor stated that the source water protection planning process should be fully transparent to the public. As a result, the SPPC would be required to provide substantial opportunity for input among all affected stakeholders in accordance with their terms of reference.

The SPPC would be required to establish a watershed sub-committee with representation from all municipalities (and other sub-committees to facilitate discussions with other key stakeholders, as required) in the watershed to provide a mechanism for ongoing consultation during plan development. The SPPC would be required to present its work to the watershed committee at critical points during the planning cycle. Work that would have to be presented to the sub-committee(s) includes:

- the Terms of Reference;
- the source water protection assessment report;
- initial draft source water protection plans; and
- source water protection plans before they are submitted to the Ministry of the Environment.

Throughout the planning process, the SPPC, working with the sub-committee(s), would:
- hold meetings that are advertised approximately two weeks in advance, and that are open to the public;
- publish draft source water protection plans widely, informing the public of the place at which a copy of the plan is available, providing adequate time and inviting public comment in writing; and
- document responses to public input, as appropriate.

Public input would be considered before the SPPC forwards the proposed source water protection plan to the SPPB for their review and subsequent recommendation to the Ministry of the Environment.

Approval of source water protection plans

Before implementation, there are a number of levels of approval that would have to be met for source water protection plans (SPP).

Local Approval

- The SPPB would review the draft source water protection plan (SPP) to ensure it conforms to the ToR, lead the dispute resolution process, and make necessary changes as agreed to by municipalities.
- The SPPB, working with the SPPC, would request municipal resolutions in support of the draft plan. The objective would be to achieve supportive resolutions from 100% of municipalities.
- The SPPB would also document any discrepancies between the draft SPP as presented to the Board by the SPPC and the plan which is forwarded to the Ministry of the Environment for approval, including the rationale for any decisions that vary from the SPPC-proposed approach.
- The SPPB would then provide the recommended draft plan to the Ministry for approval including documentation of stakeholder objections as described above.

Provincial Approval

- The Ministry would post the SPP on the Environmental Bill of Rights Registry before being considered for approval by Minister.
- After the public input has been considered, the Ministry would have the authority to approve the SPP in whole or in part, according to the timelines set by the Ministry.

- The Ministry Of Environment would prepare review and approval policies to establish a consistent procedure for approving the SPPs.
- If the Ministry considers any plan to be deficient, it would be able to provide the SPPB with a statement describing the deficiencies and provide a timeline to re-submit the source water protection plan. If an SPP is rejected by the Ministry, in whole or in part, publicly stated reasons must be provided.
- The Ministry would complete its review and make a decision on approval within a specified timeframe once it received the draft recommended plan.

The Ministry would also be responsible for initiating the necessary inter-governmental consultations with those ministries, as well as other levels of government that would be affected by the plan, including the federal government and First Nations.

Timelines for approval of source water protection plans

The legislation would provide the authority for the Ministry to establish timelines and deliverables for source protection planning. Therefore, a schedule for completion of SPPs and its components would be established through an instrument such as regulation, Minister's Order or Terms of Reference for the source water protection plan.

This approach would allow the Ministry the time required to determine plan development, implementation details and resource and capacity-building requirements. It would also allow time to consider any relevant recommendations by the Technical Experts Committee and the Implementation Committee (e.g., capacity development within watersheds is part of the work of the Implementation Committee).

If a SPPC did not produce a draft plan or assessment report that is acceptable to the Ministry within a prescribed time limit, the Ministry would have the authority to take over development of the plan or assessment report or delegate these tasks to another public authority.

Annual progress reports

As recommended by Commissioner O'Connor, the Ministry of the Environment would produce annual progress reports indicating the status of drinking water source water protection plans in each watershed. Since the source water protection plans will be continually evolving, SPPBs would also be expected to provide regular progress reports to the public.

Updating source water protection plans

As land uses, industries and local communities evolve in Ontario, changes will be needed to source water protection plans. In fact, it must be recognized that these plans

will have to be extremely dynamic and flexible enough to respond to changes within the watershed or watershed region and to new information and technology. Updates must be done on an almost continuous basis. Therefore, mechanisms for updating must be developed and incorporated into all plans. It is anticipated that a schedule of reviews both by the SPPC and the Ministry would be established, which may have implications for the review and updating of other planning processes such as official or watershed plans.

This approach would ensure that plans provide the flexibility needed to meet current needs and ensure that future needs are integrated as they arise. It would also ensure that plans make use of the newest scientific methods and watershed data as they become available.

Most importantly, a transparent consultative approach is as important in the updating of a source water protection plan as it is in its initial formulation.

Appeals of source water protection plans

The legislation would provide certain limited rights of appeal to challenge the approval of source water protection plans, consistent with Commissioner O'Connor's recommendations in Part Two of the Report of the Walkerton Inquiry.

For a ministry-approved plan, a limited right of appeal would be available to the Environmental Review Tribunal by persons who are directly affected by the plan. These would include residents in the watershed who made written comments as part of the public consultation process during the development of the plan and any person who could demonstrate that the implementation of the plan would directly and adversely affect their use of property.

On an appeal, the Environmental Review Tribunal would only be authorized to make necessary changes to the plan or to refer the plan back to the SPPB for further consideration, if an appellant could demonstrate that the plan fundamentally fails to comply with the requirements of the legislation, or the plan's terms of reference, including the provision for public consultation established by the terms of reference.

The Planning Process From Start to Finish

The Province will establish the Source Water Protection Planning Boards (SPPB) for each watershed to coordinate the source protection planning process. Where conservation authorities (CAs) exist, the SPPB will be formed by the members of the CA Board, as appointed under the CA Act. The province would make a decision on the members of the SPPB in areas where there are no CAs.

↓

The SPPBs would be responsible for establishing a multi-stakeholder Source Protection Planning Committee (SPPC) for the watershed region.

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The SPPC would be responsible for overseeing the development of the source water protection plan for each watershed.

↓

The SPPC, in consultation with the SPPB, would prepare a Terms of Reference (ToR).

↓

The ToR would confirm the approach that would be taken to obtain municipal support for the draft source water protection plan as demonstrated by municipal council resolutions.

↓

The SPPC would also be responsible for:

- establishing multi-stakeholder working groups and sub-committees;
- developing a transparent decision and conflict resolution process;
- undertaking technical studies and analyzing results and data;
- consulting broadly to ensure input, particularly from municipalities and key stakeholders such as the agricultural sector; and
- developing a source water protection assessment and draft source water protection plan for the watershed or watersheds in the region.

↓

Once completed, the SPPC would submit the draft plan to the SPPB for review and endorsement.

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The SPPB would work towards a goal of having resolutions in support of the plan from 100% of municipalities before submitting the plan to the Minister.

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The SPPB would be required to consider any objections to the draft plan and use best efforts to resolve any issues locally, as provided for in the SPPC's ToR.

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Any changes to the plan would have to be presented to each municipal council in the watershed.

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If an issue could not be resolved locally, the SPPB would be required to document objections to the draft plan, the attempts made to resolve the objections locally, and the rationale for the approach included in the draft plan being submitted.

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The SPPB would provide the endorsed draft plan to the Ministry for review and approval.

SECTION 4: IMPROVING THE MANAGEMENT OF WATER TAKINGS

There is a growing interest among municipalities, non-governmental organizations, and the public in how Ontario's water resources are managed to ensure that our supply of water is protected in the long-term. The management of water takings is critical to protecting drinking water sources and for many other purposes, including sustaining the needs of the ecosystem.

Two issues are discussed in this section, both dealing with potential government responses to the growing concerns regarding water quantity. The first issue relates to the approach being taken by the Ministry to its review of the rules and processes associated with water takings, including the 'permit to take water' (PTTW) program. The second provides a preliminary exploration of a framework for how Ontario could charge for water takings.

Current Rules Governing Water Takings

Water takings are governed by the *Ontario Water Resources Act* (OWRA) and the Water Taking and Transfer Regulation (Ontario Regulation 285/99).

The OWRA requires anyone taking more than a total of 50,000 litres of water in a day, with some exceptions, to obtain a Permit from a Director appointed by the Minister. The Director also has the discretionary authority to require a permit for water takings of less than 50,000 litres per day.

Permitted water uses include: municipal, commercial, industrial, and communal water supplies, agricultural irrigation, recreational uses, water bottling, and construction. Specific uses are exempt from the permitting requirement, namely, individual household use, direct watering of livestock and poultry, and water for firefighting.

The Water Taking and Transfer Regulation provides for the conservation, protection and wise use and management of Ontario's waters by prohibiting the bulk transfer of water out of specified water basins, among other protections. This prohibition on the transfer or diversion of bulk water does not apply to water that is used in the water basin to manufacture or produce a product that is then transferred out of the water basin. Also, the prohibition does not apply to water packaged in a container having a volume of 20 litres or less.

Water Takings

The Ministry has been holding discussions on potential changes to the legislative and regulatory framework that governs water takings (i.e., the *Ontario Water Resources Act* and the Water Taking and Transfer Regulation) since April 2003. Discussions have been held with key stakeholders such as the Association of Municipalities of Ontario, Conservation Ontario, farm organizations, and other water users.

The Ministry is building on this consultation with stakeholders and is planning to make further improvements in the areas described below.

Ensuring stakeholder awareness and involvement

The Ministry is committed to providing greater opportunities for public involvement in decisions about water takings by improving the notification mechanisms of the PTTW application process.

Currently, public consultation is undertaken through postings on the Environmental Bill of Rights Registry (EBR). Exceptions include permits issued for less than one year, permits for agricultural irrigation, and permits required in emergency situations. Permit decisions posted on the Registry can be appealed by the applicant (and by a third party with leave of the Environmental Review Tribunal). Direct municipal and conservation authority notifications occur where the local agency has made a specific request. A Director also can request that an applicant consult with other persons who have an interest in the taking, including governmental authorities for other jurisdictions.

Improvements already proposed include requiring those making the application for a PTTW to provide enhanced notification of interested parties through increased landowner contacts and notice to municipalities and conservation authorities. Stakeholders responded by recommending that this aspect of the application process be strengthened even further.

As a result, the Ministry is proposing the following additional improvements:

- ensuring that the notification process would enable interested parties to receive early and regular notification by the Ministry; and
- increasing the responsibility of permit applicants to address concerns of the public, where there is a sufficient level of interest in the proposal. For example, the applicant could be required to undertake additional consultation activities to address public concerns about a water taking.

Improving Water Management Science through Research

The Ministry is committed to improving the science that underlies our understanding of the consequences of water taking on local water supplies, the ecosystem, and other users in a watershed through research partnerships.

The Ministry will consult on the development and application of methods to calculate water budgets. Water budgets calculate and compare the cumulative annual water flow into an area (e.g., precipitation, surface water, groundwater) with the cumulative annual flow out of the same area (e.g., evapotranspiration, surface water and groundwater).

The planned consultation will focus on water budgeting at two different scales:

- at the level of the watershed; and
- at smaller scales to assist with the assessment of one or more specific water takings.

The expected outcome would be the development of rules to determine at what scale a water budget is required depending on the features of the watershed, as well as the amount and type of water taking.

In addition, there are other areas in which the Ministry's research partnerships are making significant contributions. For example, the Ministry is funding scientific research to increase our understanding of the relationship between water flow and aquatic ecosystems in ways that will improve our ability to assess the potential environmental impacts of water takings. There are several methods being used in other jurisdictions, but these have not yet been tested or validated for their use in Ontario.

Currently, the Ministry, in partnership with Conservation Ontario, is testing new methods for setting minimum stream flows necessary to protect the natural functions of ecosystems. The project is designed to address the need for a standardized approach to setting threshold flows for surface waters in Ontario. Once we know more, the Ministry expects to prepare supporting materials on acceptable methods for assessing impacts and establish the criteria for when instream flow will be required to be considered in the PTTW process.

Future areas of research could include better defining the relationship of groundwater to surface water, investigating links between water quality models and flow regimes, and improving the science of impacts to wetlands.

Monitoring and Reporting of Water Use

Monitoring and reporting information is required to ensure the sustainability of water takings and the integrity of aquatic systems, and to supply data for water budgets, cumulative impact assessment, and the Ontario Low Water Response Program.

Many PTTW permit holders currently monitor their takings and report them at the expiry of their permit. However, there is no database containing the actual amounts of water

taken by permit holders. Consequently, a number of stakeholders have pointed out the need for mandatory monitoring and reporting.

In response, the Ministry funded a pilot project with Conservation Ontario, Quinte Conservation Authority and Long Point Region Conservation Authority to assess the technical issues involved in establishing a consistent monitoring and reporting system.

The findings of this pilot project will guide the Ministry as it considers how to develop a monitoring and reporting system that could be applied province-wide.

Very preliminary considerations that would inform any province-wide monitoring and reporting systems include the need to:

- recognize the different levels of capability and experience in monitoring and reporting water takings of different parties (e.g., by phasing-in any requirements). Municipalities, for example, already carry out these activities, whereas other takers would require education and training in order to meet such requirements;
- provide a guidance manual to assist permit holders in improving the accuracy of their monitoring systems;
- identify the key factors that would determine the frequency of reporting and accuracy of monitoring such as the environmental conditions of the watershed and the type of water taking (e.g., users not returning water to the watershed); and
- create a comprehensive, user-friendly, publicly accessible database to house the water taking data.

Enhancing Guidance for Permit Applicants and Reviewers

Stakeholders have identified the need to improve the rules and procedures used to review and make decisions on permit applications.

To respond to this concern, the Ministry is committed to updating the *Permits to Take Water: Guidelines and Procedures Manual*. The updated manual will provide clearer guidance for permit applicants and reviewers on the required level of review for different types of permits. The Ministry will relate specific rules and procedures to considerations such as the type of water taking, conditions in the watershed, and the interests of potentially affected parties in the taking.

The Ministry is planning to post an updated "Permits to Take Water, Guidelines and Procedures Manual" in conjunction with related PTTW regulatory and program improvements for public review and comment.

Promoting Water Use Efficiency and Conservation

As pressures on water resources increase from human uses and changing environmental conditions, so does the importance of water conservation and water efficiency. The Ministry is committed to promoting best conservation practices by all water takers.

The Ministry is seeking input on where there may be opportunities for promotion of efficient use and conservation in the PTTW process (when permits are granted or renewed). For example, there may be value in exploring the benefits of:

- voluntary commitments by permit holders;
- third party certification of proposed water conservation measures; and
- basic education and outreach.

Water Taking Charges

On December 18, 2003 the government announced its intent to apply charges to water takings that remove water from the watershed for commercial purposes. This would be the first time that charges for water takings would be applied in Ontario.

A provincial water taking charge would complement improvements to the Permit to Take Water program, discussed above, ensuring that the impact of water takings is regulated in a way that is consistent with environmental considerations and the needs of all those who rely on and benefit from this resource. The framework would also be consistent with Ontario's overall approach to source water protection and the overarching objective of protecting human health. The government is proceeding carefully with the introduction of charges for water takings, given the potential trade implications and the need to promote a strong economy in Ontario and be competitive with other jurisdictions.

The input received in response to the White Paper will be considered as the province acts to ensure that those who benefit from Ontario's water resources pay their fair share to protect and manage it for future generations.

Water charges in other jurisdictions

Many jurisdictions, including most Canadian provinces, charge a fee for a permit or license to withdraw water above a certain volume. The charge structures vary but can include both a fixed administrative fee and an additional annual charge based on the volume of water used. Typically, different fees are charged for different types of water use (e.g., industrial versus agricultural) and, in many cases, some water users are exempt from the charge. Examples from two jurisdictions follow.

British Columbia

Water licenses are issued by Land and Water British Columbia for all surface water withdrawals in the province. There are currently over 43,000 water licenses for 90 different water taking purposes. Water withdrawn for domestic purposes, mineral processing, and fire fighting are exempt from the licensing requirement.

British Columbia has had water taking charges since the 1930s. The current charging framework includes a one-time license application fee and an annual volume-based water rental fee. The license application fees range from $100 to $10,000, depending on the purpose of the taking and the volume of the requested withdrawal. Each year, approximately 300 - 400 new license applications generate $450,000.

The rental rate varies according to the purpose of the water taking and is multiplied by the volume of water allocated in the license to determine the annual charge. The annual water rental charge ranges from $11 to more than $5,000. The revenue from the water rental charges is approximately $6 million per year, not including charges to the power generation sector.

All revenue generated from water taking charges in British Columbia, with the exception of revenue from the power generation sector, is retained by Land and Water British Columbia to fund its programs.

United Kingdom

In England and Wales, licenses are issued by the U.K. Environment Agency for most ground and surface water takings, or abstractions. Exemptions from licensing include small withdrawals (i.e., <20,000 L/day) for domestic purposes, as well as for de-watering, fire fighting, and certain agricultural uses (e.g., spray irrigation is not exempt).

In the U.K., charges are also applied to licensed water abstractions. The current framework has been in place since 1993 and includes both an application fee of approximately $250 (CAD) and an annual charge. The annual charge is calculated according to the licensed volume of the taking, the source of the taking, and the type of taking (i.e., consumptive vs. non-consumptive).

Annual revenue from water taking charges in the U.K. is approximately $250 million (CAD) and is used to fund all of the Water Agency's water resources management activities, including measurement, licensing and resource protection.

Considerations for water taking charges in Ontario

Examining the approaches taken by other jurisdictions to water charging highlights a number of considerations that could inform the design of a system appropriate for

Ontario. Key principles that could guide the development of a provincial water taking charges framework are:

- promoting water resource protection through efficient use and conservation;
- ensuring fairness, equity, and transparency for permitted water users and other stakeholders, including the people of Ontario; and
- applying user charges to permitted water takers that can contribute to the costs of managing a sustainable and healthy supply of water in Ontario.

In addition to these principles, there are several factors that need to be considered when designing a system of water taking charges. These key factors are discussed briefly below.

Charge variability

A water taking charge could be fixed for all permitted users, or graduated according to factors such as the characteristics of the water taking, the purpose of the water taking, or conditions in the watershed.

- *Volume*: There is high variability in the volumes of permitted water takings in Ontario. Permits are required for most water takings greater than 50,000 litres per day. There are, however, more than 200 existing permits that permit the withdrawal of more than 20 million litres per day.

  A volume-based charge could reflect these tremendous differences between water users. Charges could apply to the permitted volume of the taking or the actual amount of water taking. Charging based on the permitted volume may penalize certain users that take less than their permitted amount in a given year. Charging for actual water taking would require permit holders to monitor (e.g., metering or estimating) and periodically report the volume of their water taking.

- *Consumptive use*: Consumptive use refers to the portion of a surface or ground water withdrawal that is not returned (within a relatively short time frame) to the water source from which it was taken. Consumptive uses or losses cause concern when they interfere with the interests of other users sharing the resource or threaten ecological functions that underlie the health of aquatic ecosystems.

Consumptive use could be integrated into a charging system. Water users that permanently remove water from the local watershed could be charged. This would mean that those companies that incorporate a significant portion of water into their end products could pay for their water withdrawals.

- *Source*: The source of the water taking could be another factor used in determining a water taking charge. For example, different charges could apply to surface water and groundwater sources.

  Also, watersheds in Ontario are under different degrees of stress due to their location, levels of urban growth, and type of land use. With adequate information on

cumulative water use and water availability (e.g., a water budget model), charges could vary according to the location of the taking to reflect these different watershed conditions. These could include previous or existing water quantity pressures and the degree of need for remedial actions within the area of the proposed taking.

Exemption

In many jurisdictions, uses such as drinking water, fire protection, mineral processing, agriculture and conservation are exempt from a water taking charge. In Ontario, similar exemptions could be made for water takings.

Frequency

The frequency of payment of a water taking charge raises considerations for fairness among future and existing permitted water takers.

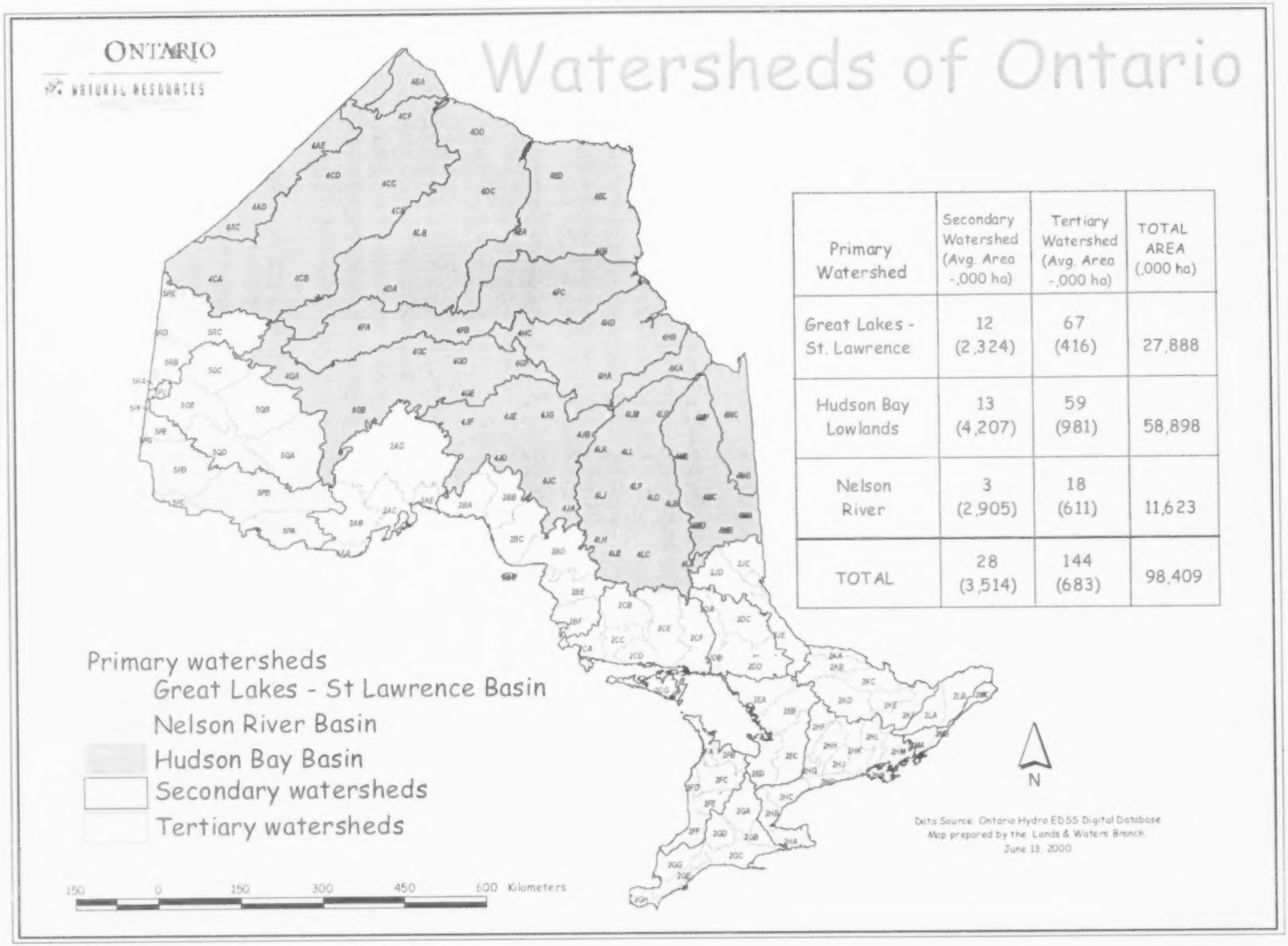
Water users could pay a one-time charge on issuance or renewal of their permits. Given that permits are issued for varying lengths of time, certain water users would be charged more frequently. To deal with this inequity, a one-time charge could be pro-rated, according to the duration of the permit.

Alternatively, regular, periodic (e.g., annual) charges could be applied to new and existing permitted users. All water takers, regardless of the duration of their permits, could be charged at the same frequency.

Next steps

Following early consultations with the public and stakeholders, a proposed framework for water taking charges will be brought forward in spring 2004.

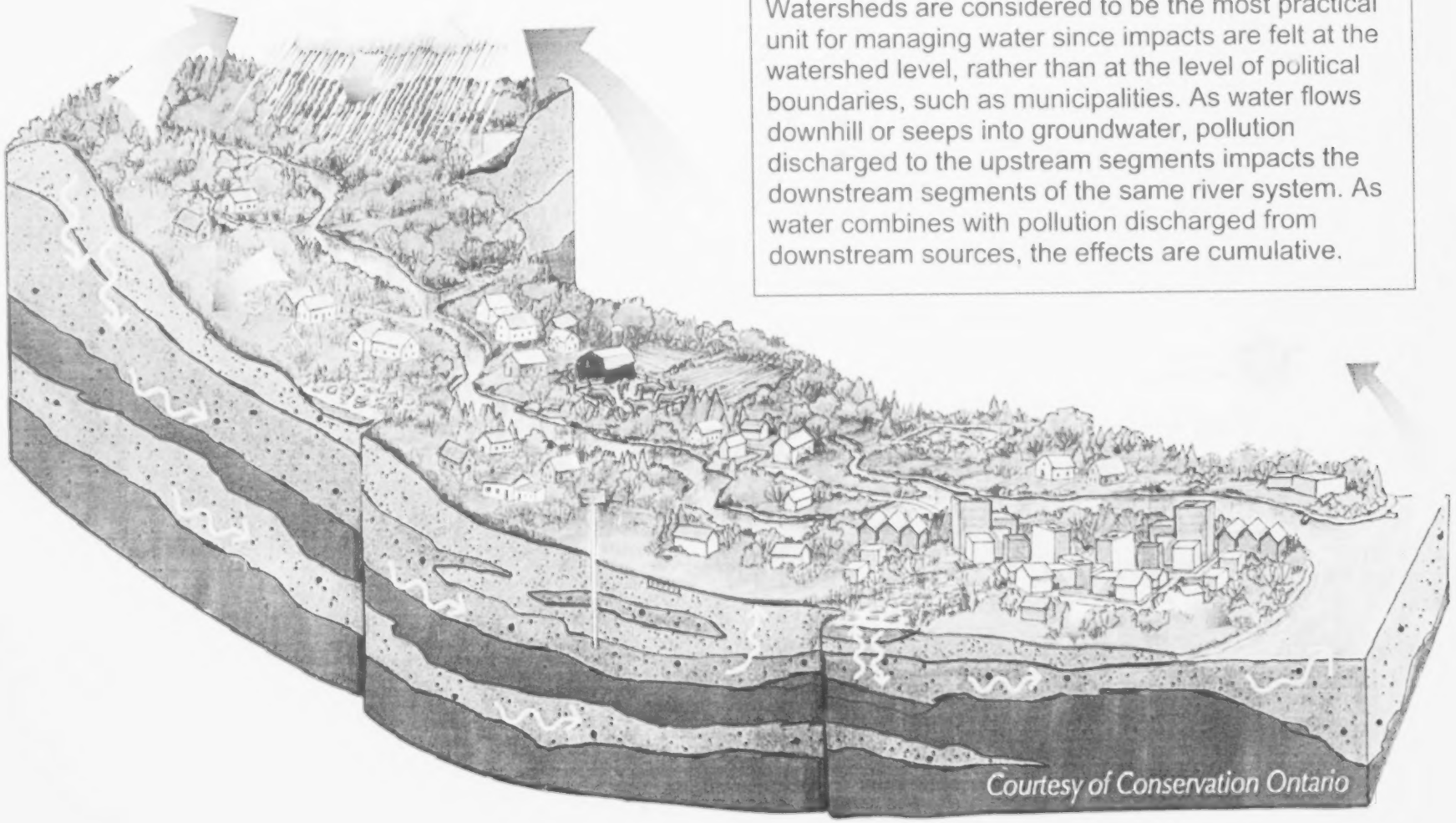
APPENDIX 1 – FIGURE #1



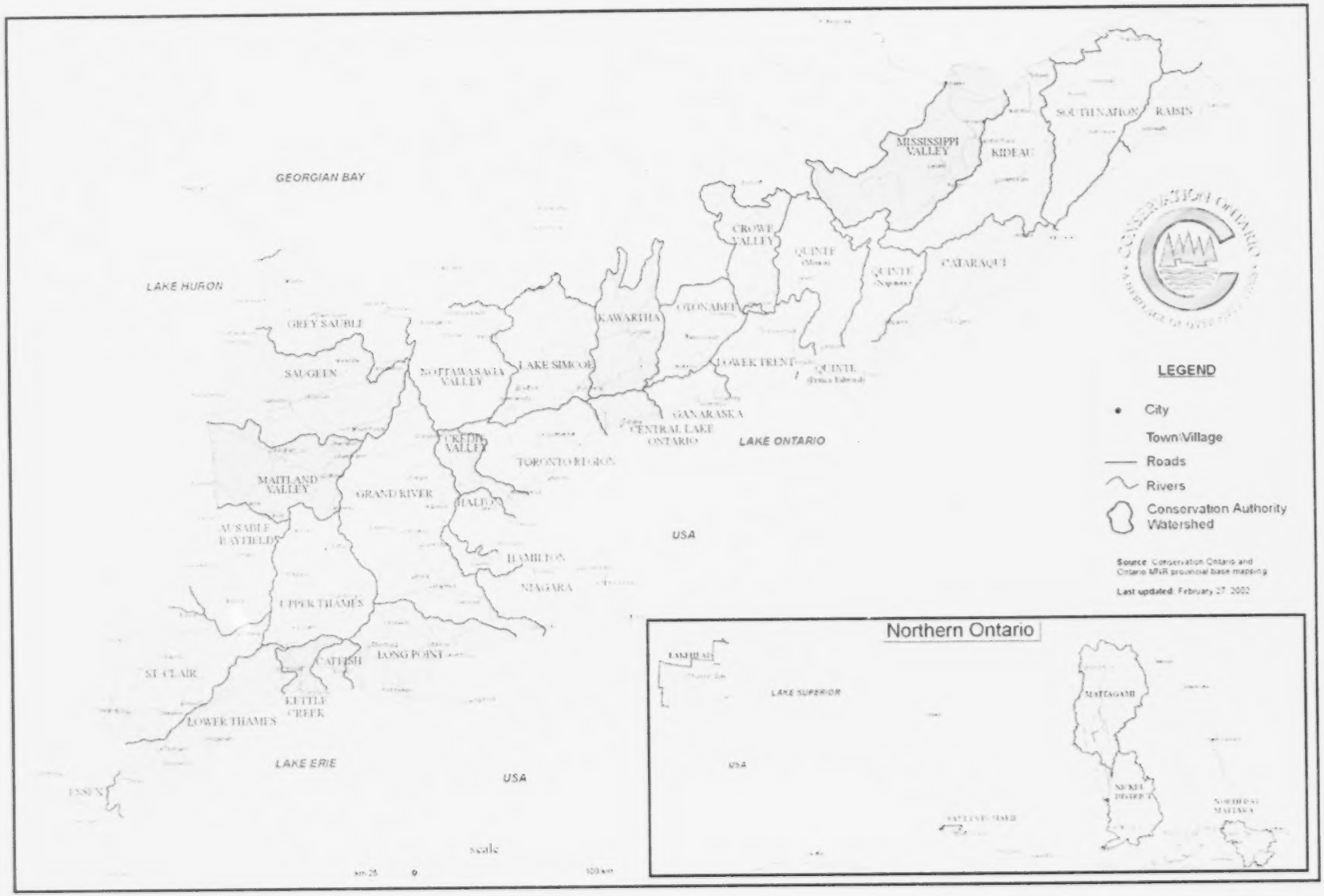
Primary Watershed	Secondary Watershed (Avg. Area -,000 ha)	Tertiary Watershed (Avg. Area -,000 ha)	TOTAL AREA (,000 ha)
Great Lakes - St. Lawrence	12 (2,324)	67 (416)	27,888
Hudson Bay Lowlands	13 (4,207)	59 (981)	58,898
Nelson River	3 (2,905)	18 (611)	11,623
TOTAL	28 (3,514)	144 (683)	98,409

APPENDIX 1 - FIGURE #2: WATER MANAGEMENT AT THE WATERSHED LEVEL

Watersheds are considered to be the most practical unit for managing water since impacts are felt at the watershed level, rather than at the level of political boundaries, such as municipalities. As water flows downhill or seeps into groundwater, pollution discharged to the upstream segments impacts the downstream segments of the same river system. As water combines with pollution discharged from downstream sources, the effects are cumulative.



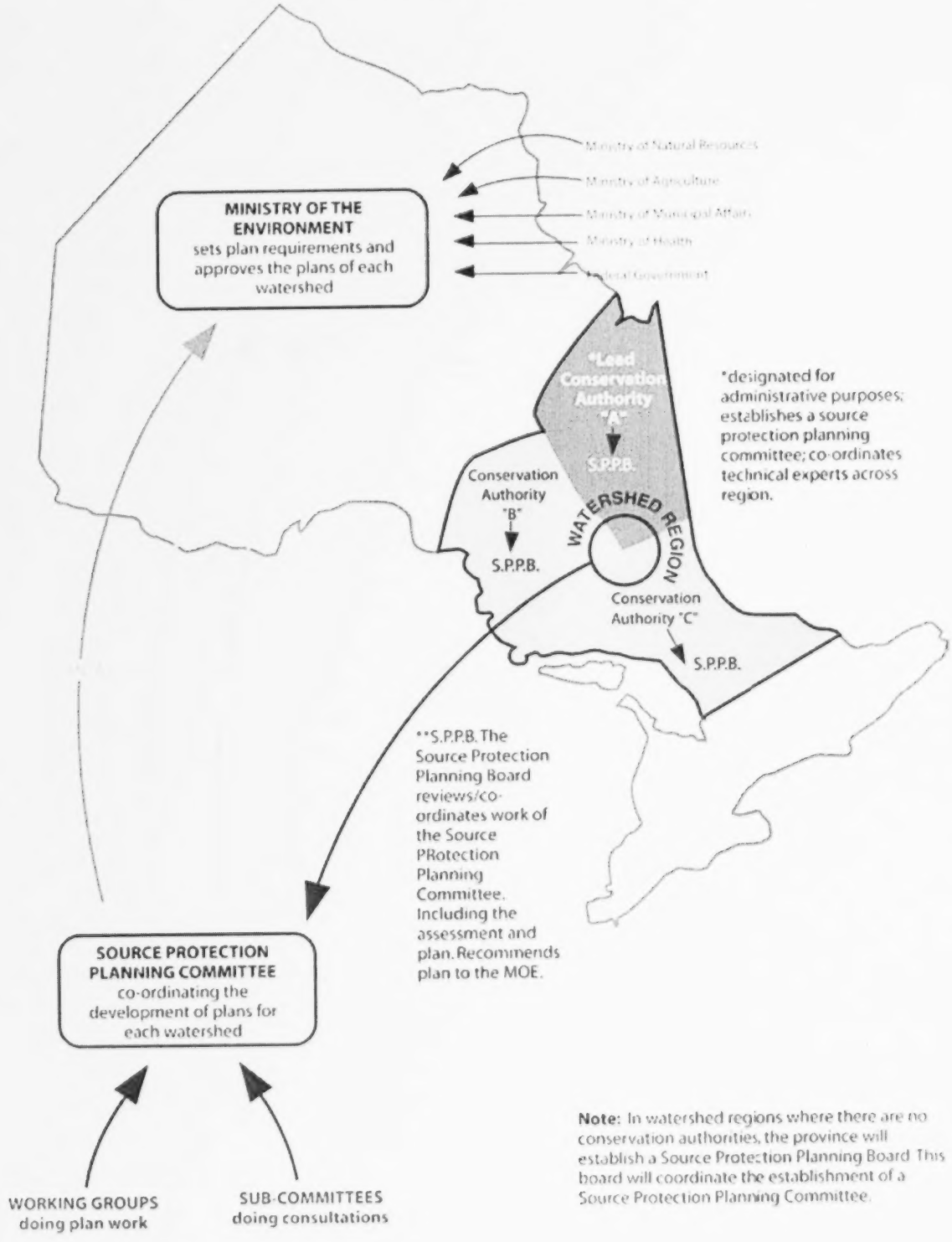
APPENDIX 1 - FIGURE #3: MAP OF CONSERVATION AUTHORITIES IN ONTARIO



APPENDIX 1 - FIGURE #4

Map of Potential Source Protection Watershed Regions

APPENDIX 1 - FIGURE #5
SOURCE PROTECTION PLANNING: GOVERNANCE STRUCTURE


Ministry of Natural Resources
Ministry of Agriculture
Ministry of Municipal Affairs
Ministry of Health
Local Government
MINISTRY OF THE ENVIRONMENT
sets plan requirements and approves the plans of each watershed
*Lead Conservation Authority "A"
S.P.P.B.
Conservation Authority "B"
S.P.P.B.
WATERSHED REGION
Conservation Authority "C"
S.P.P.B.
*designated for administrative purposes; establishes a source protection planning committee; co-ordinates technical experts across region.
**S.P.P.B. The Source Protection Planning Board reviews/co-ordinates work of the Source PRotection Planning Committee. Including the assessment and plan. Recommends plan to the MOE.
SOURCE PROTECTION PLANNING COMMITTEE
co-ordinating the development of plans for each watershed
WORKING GROUPS
doing plan work
SUB-COMMITTEES
doing consultations

Note: In watershed regions where there are no conservation authorities, the province will establish a Source Protection Planning Board. This board will coordinate the establishment of a Source Protection Planning Committee.

APPENDIX 1 - FIGURE #6: PROPOSED SOURCE PROTECTION PLANNING PROCESS

CONSULTATION

PLANNING STAGE	ELEMENT OF PLANNING PROCESS	DESCRIPTION
ESTABLISHING AN ORGANIZATIONAL STRUCTURE	Source Protection Planning Board (SPPB)	The primary responsibility of the SPPB is to coordinate/review the work of the SPPC. SPPB is the local Conservation Authority (CA) board where CAs exist. The province will designate an SPPB where no CA is present.
	Source Protection Planning Committee (SPPC)	The SPPB will establish a SPPC, comprised of local stakeholders. SPPCs will coordinate the development of source protection plan (or plans) for the watershed region.
	Working Groups	SPPC will establish working groups to undertake work to develop a plan, e.g. technical studies of watershed resources. Working groups will be comprised of representatives from CAs, municipalities, the province, and other local stakeholders with expertise.
DEVELOPING A SOURCE PROTECTION PLAN	Technical Assessment	Provide information on existing and prospective water supplies, water use/demand for water in the watershed, and potential sources of contamination.
	Interim Management Strategies	Identification of measures to be taken as soon as possible, to address immediate threats to drinking water sources. Examples of measures could include, well head protection, well decommissioning, clean-ups, etc.
	Threat Assessment & Development of Management Strategies	Evaluate management options based on the ranked hazards identified using information from the technical assessment, prioritizing actions and implementing them.
	Source Protection Plan	Identify management actions that will be undertaken to protect the quality and quantity of sources of drinking water over the near and the long term.
	Approval of Plan	Local approval: SPPB, working with SPPC, would request municipal resolutions in support of draft plan. The objective would be to achieve supportive resolutions from 100% of municipalities. Provincial approval: SPPB forwards draft plan to the Ministry of the Environment for final approval. The plan will be posted on the EBR prior to being considered by Minister.
MONITORING & UPDATING	Monitoring	A monitoring program will be implemented to ensure the effectiveness source protection plan.
	Update	As land uses, industries and local communities evolve in Ontario, changes will be needed to source water protection plans, updates will need to be done on a continuous basis.

APPENDIX 2: PROPOSED MANDATORY FRAMEWORK FOR THE THREATS ASSESSMENT PROCESS

The details of this process would be informed by the work of the Technical Experts Committee. One potential approach contains the following sequential steps:

1. Scope and objectives set during the assessment phase.

2. Threats inventory and analysis – this is anticipated to be "generic" and conservative so as to be consistent with the precautionary principle, and will include descriptors for data reliability and confidence, resulting in a ranking of threats from high to low.

3. Water resource sensitivity analysis – identification of how individual water resources may respond (generic) if a threat becomes an impact, including descriptors of analysis reliability and confidence, resulting in a numeric ranking of sensitivity.

4. Vulnerability analysis – identification of the likelihood of specific threats impinging upon the water resource, including proximity and pathway analysis and reliability and confidence analysis, resulting in a numeric ranking of vulnerability.

5. Risk analysis compilation – summarization of the threats, sensitivity and vulnerability analysis to result in a compiled listing of relative "risk" including "confidence descriptors" derived from data reliability and confidence compilations.

6. Values analysis – review of ranking summaries to identify water resources that are threatened that have current or prospective use, or may be of high value to the SPPC, so as to concentrate planning activities upon highly valued water resources,. This would also incorporate into the risk ranking threats to other water uses, including heritage, fisheries, wetlands, etc, for which a semi-quantitative risk assessment approach may not be applicable.

7. Ranking of water resources under threat for subsequent detailed site-specific analysis, utilizing a conservative (precautionary) approach when considering data uncertainty.

8. Repeat Steps 2-7 using site-specific models and ground-truthed information about threats, loadings, discharges, sensitivity, vulnerability including the ability to document the existence and compliance of "best practices" or other risk mitigation measures that will if maintained, substantially reduce the threat.

9. Designation of water resources as follows:
   - drinking water resources under significant and direct threat for immediate actions to reduce the threat;
   - drinking water resources for which current risk reduction practices must be maintained;
   - future drinking water resources for which action is required either to restore or maintain the water quality and quantity; and
   - surface water resources and other water resources (wetlands, springs, heritage waters) that require remediation or protection.

10. Delineation of management actions to be undertaken, including those to resolve information gaps and pursue a monitoring program

APPENDIX 3: PROPOSED CONTENT OF A SOURCE WATER PROTECTION ASSESSMENT

The content of the source water protection assessment would be set in regulation, and could include:

- objectives and priorities of the source water protection plan;
- generalized maps of current land uses (scale of 1:50,000) including land-use designations as the principle designation of land-use business including large and small industry, residential, urban, agricultural and protected (parks, conservation easements)specific maps designating and outlining current plans for projected development including type of development, timeframes and plans for provision of water to the current developments as outlined in current Official Plans for the area;
- water use inventories including groundwater takings including private, communal and municipal drinking water supplies as well as industrial, commercial and agricultural water takings) as well as delineation of areas experiencing stress due to water taking presently;
- significant hydrologic features including groundwater discharges(to surface waters), known recharge and wetland areas, and groundwater supplies under the influence of surface water;
- known areas of water contamination (surface and groundwater), as well as designated high-risk land uses;
- a tentative/provisional water budget for the watershed;
- identification of areas vulnerable to contamination;
- identification of historical potential contaminants;
- identification/decommissioning of abandoned or poorly constructed wells;
- identification of existing wellhead protection areas, including risk reduction measures being undertaken;
- identification of potential contaminant sources that have been undertaken in the past, such as through municipal groundwater studies or equivalent initiatives;
- details of existing water rate schedules; and
- preliminary analysis of water quality including both surface water (compared to PWQO's) and groundwater (compared to ODWS) highlighting areas in which chemical contamination currently appears to constrain current use as a raw water source for drinking water and where current contaminant levels in lakes and streams may be impairing ecological function or impairing beneficial uses as defined by the SPPC.

An inventory and analysis of high risk activities including:

- hazardous, municipal and private land-fill sites;
- known locations of groundwater contamination with industrial byproducts;
- brownfields and abandoned sites;
- direct industrial and municipal discharges to surface waters;
- stormwater discharges and infiltration lagoons/ponds;
- septic fields and cemeteries; and
- uncovered road-salt piles and snow dumps.

Where Groundwater Studies have been undertaken and Wellhead Protection Areas designated the Assessment Report will outline:

- documented threats to drinking water;
- existing control or prevention initiatives;
- evaluations of additional initiatives that could be utilized or explored as part of the Source Water Protection Plan;
- monitoring and information needs highlighted by existing studies which, if addressed, can improve the quality of the subsequent SPP; and
- designations of existing groundwater supplies for which remediation activities are necessary so as to obtain contaminant levels consistent with the ODWS and sufficient water quantities where apparently impaired by adjacent water takings.

APPENDIX 4: SCOPE AND OBJECTIVES OF THE SOURCE WATER PROTECTION PLAN

The scope and objectives, which must be outlined within the context of the assessment report, would be set in regulation and could require:

- definition of a long-term vision for water in the watershed, including drinking water provision and protection of ecological function and valued components of the ecosystem of heritage or commercial/sport interest to be supplied as a projected water budget at regular intervals including allocation of water to major uses in the watershed;
- protection of communal and private ground-water supplies by taking action to prevent contaminant levels from exceeding the DWS where such water shall be used as a source of drinking water as noted in the Vision;
- protection of municipal ground-water supplies by taking action to prevent contaminant levels from exceeding the DWS where such water shall be used as a source of drinking water as noted in the Vision;
- where new supplies of water shall be used as a source of drinking water as noted in the Vision, plans for the protection of these supplies at current levels of quality and quantity;
- restoration of contaminated water supplies (surface and groundwater) that may be used for drinking water supplies in the long term vision plan to be timed coincident with the projected requirement for these water supplies;
- restoration and protection of significant surface water supplies determined to be important to the SPPC such as important fisheries, wetlands, heritage or cultural areas;
- identification of planning and growth opportunities that take into regard water protection strategies;
- a role for protected lands strategies (easements, purchases), education, regulation and incentives in the protection and restoration of water quality and quantity;
- an estimate for any increased need for 'out-of-basin' water supplies such as may be provided from the Great Lakes and transported inland for distribution; and
- delineation of groundwater supplies that cross surface-watershed boundaries and a proposal for joint management of these supplies with the responsible authority.

APPENDIX 5: POTENTIAL QUESTIONS FOR THE REGIONAL STAKEHOLDER CONSULTATIONS

Source Water Protection

1. Source water protection is a complex undertaking. What is the best approach to ensuring that the process is open to input from those it may affect?

2. Should any changes to the scope of source water protection legislation be made (provide details)?

3. To make sure that source water protection legislation can achieve its objective – the protection of public health – should there be a specific primacy provision in the legislation (i.e., primacy means that the law would take priority over other laws when there is conflict)?

4. What are the advantages and disadvantages of this proposed approach to source water protection?

5. What mechanisms would help the Source Protection Planning Committee to effectively manage the process, set priorities and reach timely conclusion to the planning process?

6. Is the proposed composition of the Source Protection Planning Committee appropriate (why or why not)?

7. Partnerships will be a key success factor in the development of source water protection plans and in their implementation. How can the process build on existing partnerships that support source water protection-related activities? What is the best way to facilitate new partnerships that may be needed?

8. How can source protection planning best achieve a balance between achieving some consistency across the province and the need for flexibility to deal appropriately with local conditions and priorities?

9. What criteria should the Ministry of the Environment use to decide whether to approve a source water protection plan?

10. Are there specific improvements that you would make to the proposed source water protection assessment or planning process?

11. What should happen if a source water protection plan is not completed in a timely way (e.g., fails to meet timelines as set out in regulations)?

Water Taking Charges

12. Should water taking charges be fixed for all users, or scaled according to factors related to the taking, such as volume, consumption, or water source?

13. Should certain purposes of water taking be exempt from a charge?